

- There would be no disproportionately high and adverse impacts to minority and low-income populations. DOE considered impacts that would be associated with potential routes for rail and legal-weight and heavy-haul trucks that would pass through or near the Moapa and Las Vegas Paiute Indian Reservations and the newly established Timbisha Shoshone Trust Lands.

The factors that differ among the alternative transportation corridors and routes are length and associated time of travel, land use or disturbance, industrial safety impacts, job creation, and cost. The U.S. Air Force has informed DOE that it strongly opposes the Caliente-Chalk Mountain Corridor because it could adversely affect national security-related activities of the Nellis Air Force Range (now called the Nevada Test and Training Range). The State of Nevada and the City of Las Vegas have expressed specific concerns about shipments through or near the Las Vegas metropolitan area, which would occur if either the Jean or Valley Modified Corridor or the Caliente-Las Vegas, Apex/Dry Lake, or Sloan/Jean heavy-haul truck route was selected.

S.6 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, DOE would terminate site characterization activities at the Yucca Mountain site. Long-term storage of spent nuclear fuel and high-level radioactive waste would continue at 77 sites.

DOE analyzed the potential impacts of two no-action scenarios: long-term storage with institutional controls (Scenario 1) and long-term storage with no effective institutional control after about 100 years (Scenario 2). The Department recognizes that neither of these scenarios is likely to occur if there is a decision not to develop a repository at Yucca Mountain, but any other scenarios would be too speculative for meaningful analysis. DOE therefore chose to include the two scenarios because they provide a basis for comparison to the impacts from the Proposed Action.

Activities at the Yucca Mountain site would be the same under either Scenario 1 or 2, as would impacts at the commercial and DOE sites during the first 100 years. After about 100 years and for as long as the 10,000-year analysis period and beyond, Scenario 2 assumes that the storage facilities at the 72 commercial sites and 5 DOE sites would deteriorate and that the radioactive materials in the spent nuclear fuel and high-level radioactive waste would eventually escape to the environment, contaminating the atmosphere, soil, surface water, and groundwater.

S.6.1 RECLAMATION AND DECOMMISSIONING AT THE YUCCA MOUNTAIN SITE

Under the No-Action Alternative, DOE would end characterization and construction activities at the Yucca Mountain Repository site and would complete site decommissioning and reclamation. Land ownership and control would revert to the original controlling authority. Adverse impacts to any resource would be unlikely as a result of these activities.

The overall impact of the No-Action Alternative would be the loss of approximately 4,700 jobs in the Yucca Mountain region of influence, out of approximately 840,000 jobs in the region. Most of the lost jobs would be in disciplines (construction, engineering, administration, support, etc.) that are not unique or unusual and are similar to those in the region. However, some of the jobs would be in unique disciplines (nuclear engineering, nuclear safety, etc.) that might not otherwise be needed in the region. Fatalities from industrial hazards would be unlikely, as would latent cancer fatalities from worker or public exposure to naturally occurring radionuclides released by decommissioning and reclamation activities. Resources important to Native American interests would be preserved, although the integrity of archeological sites and resources could be threatened by increased public access if roads were open and site boundaries were not secure.

S.6.2 CONTINUED STORAGE AT COMMERCIAL AND DOE SITES

The No-Action Alternative assumes that the spent nuclear fuel and high-level radioactive waste would remain at the sites at which it is being generated and stored. For the EIS analysis, DOE divided the 72 commercial and 5 DOE sites among five regions of the country to organize the analysis into a framework that would promote an understanding of comparative impacts, and configured a single hypothetical site in each region. Such sites do not exist but are mathematical constructs for analytical purposes. Using this approach, DOE was able to estimate the potential release rate of the radionuclide inventory from the spent nuclear fuel and high-level radioactive waste, based on anticipated interactions of the environment (for example, rainfall and freeze-thaw cycles) with the concrete storage modules in which the nuclear materials would be stored.

The potential occupational and public health and safety impacts associated with the No-Action Alternative are described below. For purposes of this analysis, the potential occupational and public health and safety impacts are the most relevant for comparison with the impacts of the Proposed Action.

S.6.2.1 No-Action Scenario 1

Under this scenario, releases of contaminants to the ground, air, or water would be extremely small under normal conditions. Workers would perform routine industrial maintenance and maintenance unique to a nuclear materials storage facility to minimize releases of contaminants to the environment and exposures to workers and the public. These activities could result in worker exposures to industrial hazards, and worker and public exposures to radiological releases.

IMPACTS FROM NO-ACTION SCENARIO 1

Industrial hazards

- 2 worker fatalities in the first 100 years, and 320 in the next 9,900 years
- 760 fatalities in the public and worker population from worker commuting and transportation of maintenance materials over 10,000 years.

Radiological

- 3.0 latent cancer fatalities in exposed public population over 10,000 years (compared to 3.3 million from other causes in the areas immediately surrounding the 77 sites)
- 10 latent cancer fatalities in involved worker population over 10,000 years (compared to 37,600 from other causes)
- 16 latent cancer fatalities in involved and noninvolved worker population over 100 years, after which noninvolved workers would not be present at the site (compared to 18,800 from other causes)
- No radiological releases would be expected in the event of a severe accident (a postulated aircraft crash at the relatively low velocities encountered during takeoffs and landings) because of the integrity of the concrete storage modules. Consequences of impacts at higher velocities have not been evaluated by DOE for these Nuclear Regulatory Commission-licensed facilities.

S.6.2.2 No-Action Scenario 2

Under this scenario, after 100 years the facilities storing the materials at 72 commercial and 5 DOE sites would begin to deteriorate and would continue to do so over time. Eventually, radioactive materials from failed facilities and storage containers and exposed radioactive materials would contaminate the land surrounding the storage facilities, potentially rendering it unfit for human habitation or agricultural uses for hundreds or thousands of years. Contaminants would enter surface waters and groundwater, which would remain contaminated for the period required for the spent nuclear fuel and high-level radioactive waste materials to be depleted and contaminants to migrate out. Environmental concentrations of

chemically toxic materials would be extremely low and would not result in adverse impacts. Released radioactive materials could produce chronic radiation exposures to the public, which could result in adverse health impacts. Intruders could incur severe radiation exposures, including fatal exposures. The number of people who would be affected by the migration of radioactive materials would be much greater in Scenario 2 than in Scenario 1.

IMPACTS FROM NO-ACTION SCENARIO 2

Industrial hazards

- 2 worker fatalities in the first 100 years and none in the next 9,900 years (workers not present at the site)
- 7 fatalities in the public and worker population from worker commuting and transportation of maintenance materials over 100 years

Radiological

- 3,300 latent cancer fatalities in exposed public population over 10,000 years (compared to 900 million expected from other causes along the 20 major waterways that would be contaminated)
- No latent cancer fatalities in involved worker population after 100 years
- No latent cancer fatalities in noninvolved worker population after 100 years
- Depending on the population at the site, between 3 and 13 latent cancer fatalities would be expected in the event of a severe accident (a postulated aircraft crash) at a degraded concrete storage module

S.6.2.3 Sabotage

Above-ground storage of spent nuclear fuel and high-level radioactive waste for 10,000 years would entail a continued risk of intruder access at each of the 77 sites. Sabotage could result in a release of radionuclides to the environment around the facility. Under Scenario 1, the analysis assumed that safeguards and security measures currently in place would remain in effect during the 10,000-year analysis period, thereby reducing the risk of sabotage.

As Nuclear Regulatory Commission licensees, the individual sites would be required to comply with Commission regulations and maintain the highest level of security as determined by the Commission, and any results from the reexamination of existing physical security and safeguard systems following the terrorist attack of September 11, 2001.

Because it is not possible to predict whether sabotage events would occur and, if they did, the nature of such events, DOE examined various accidents in this Final EIS, which provide an approximation of the consequences that could occur.

For Scenario 2, the storage of spent nuclear fuel and high-level radioactive waste for 10,000 years without institutional control would entail a greater risk of intruder access at the 77 sites than exists under current conditions. Due to the lack of institutional control and degraded facilities, sabotage could result in a release of radionuclides to the environment around the facility. The analysis assumed that safeguards and security measures would not be maintained after approximately the first 100 years. For the remaining 9,900 years of the analysis period, the cumulative risk of intruder attempts would increase. As the storage containers degraded, they would become more vulnerable to failure. Any amount of material released from its storage container could contaminate areas with radioactivity. Therefore, the risks of sabotage would increase substantially under this scenario in comparison to Scenario 1.